Case Study

UC Davis Institute of Transportation Studies

MAIN ISSUE OR CHALLENGE:
Perform the necessary technical, economic, and policy research necessary to make informed decisions about our nations transportation and energy system.

GOAL:
Perform interdisciplinary research in order to provide an objective knowledge base of advanced transportation technology and policy including fuel cells and hydrogen. To educate the future engineers, scientist, policy experts and business leaders involved in transportation.

RELEVANT FACTS:
In 1991, the Institute of Transportation Studies at UC Davis became an official organized research unit. Since then, ITS-Davis has evolved into a multifaceted internationally recognized program with 50 affiliated faculty members and more than 70 graduate students. It receives funding from government, private industry, foundations, and a variety of prestigious academic and research institutions — all of which have watched the Institute grow into one of the world's leading university programs on travel behavior, advanced environmental vehicle technology, and environmental impacts of transportation.

By partnering with these research centers and various government and industry groups, ITS-Davis provides a well-rounded educational experience for its students. Students interact with a broad range of researchers and leaders from industry, government, public interest groups, and academia through seminars and workshops, internships, visiting lectures, fellowships, and grants. ITS-Davis continues to support this comprehensive approach to education by promoting partnerships with government, industry and other research groups.

The following are just some of the examples of the Institute's research in the area of hydrogen and fuel cells:

- Hydrogen Infrastructure Planning and Development. The primary focus is to define successful pathways to the large-scale commercialization of the manufacture, storage, and distribution of hydrogen for vehicles
- H_2/CNG and Fuel Cell Bus Evaluations. ITS-Davis and Unitrans are evaluating clean, advanced hydrogen fuel technologies in a transit bus application.

- Fuel Cells to Reduce Diesel Emissions. UC Davis researchers are engaged in a $3 million project to develop and test integrated fuel cell auxiliary power units (APUs) to power truck trailer refrigeration and other auxiliary systems.
- Advanced Vehicle Modeling. ITS-Davis recently completed a five-year, $3 million FCV modeling program with 20 companies and three government agencies.
- Advanced Vehicle Powersystem Evaluations. Researchers at ITS-Davis and in the College of Engineering perform research on energy storage and conversion technologies for electric, hybrid-electric and fuel cell vehicle applications.
- Hydrogen Production and Utilization Laboratory : The overall objective of the Hydrogen Production and Utilization Laboratory is to investigate the fundamental and applied science of hydrogen production and utilization.

MAJOR PARTNERS:

Agencies

- U. S. Department of Energy
- U. S. Department of Transportation
- California Energy Commission
- California Air Resources Board
- South Coast Air Quality Management District
- Caltrans

Industry

- Air Products and Chemicals, Inc.
- BP America Inc.
- ChevronTexaco
- ConocoPhillips
- ExxonMobil Research and Engineering
- Honda R&D Americas, Inc.
- Hyundai Motor Company
- Nissan Technical Center North America
- Shell Hydrogen (US)
- TOTAL
- Toyota Motor Sales, U.S.A, Inc./ Toyota Motor Corporation

UC Davis
Hydrogen Fueling Station